

Item 431-J-15**Cooperative Research and Development Agreement with Perkin-Elmer Corporation*****Monitoring Equipment for Hydrocarbon Ozone Precursors
and for Hazardous Volatile Organic Compounds*****Participants**

This Cooperative Research and Development Agreement (CRADA) brings together research scientists from Perkin-Elmer Corporation and the U.S. Environmental Protection Agency's (EPA) Atmospheric Research and Exposure Assessment Laboratory (AREAL), in the Office of Modeling, Monitoring Systems and Quality Assurance, Office of Research and Development.

Purpose

This CRADA was initiated to combine the facilities and resources of AREAL and Perkin-Elmer to develop methods in order to comply with Title I and Title III of the Clean Air Act Amendments of 1990, (CAAA). Objectives included the development of: (1) an automated gas chromatograph to monitor ozone hydrocarbon precursors as mandated by Title (2) sampling and analytical equipment for the monitoring of volatile organic compounds (VOCs) indicated in Title III; and (3) equipment accessories for analysis of whole air samples from canisters.

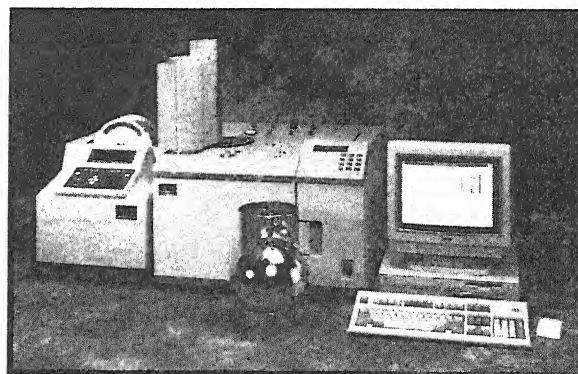
Background

AREAL has performed and sponsored substantial research to determine the presence, source concentration, and effects of environmental contaminants. The Perkin-Elmer Corporation designs and manufactures instrumentation for sampling and analysis of VOCs. Their technology has been based on the use of solid multisorbent packings to concentrate and release VOCs and on uniquely designed VOC concentrators that do not require the use of liquid cryogenics.

The design, development, and testing of automated equipment for ambient air sampling was conducted during this CRADA. The EPA influence has been to channel the scientific effort at Perkin-Elmer in directions that benefit the agency in its effort to promote the evolution of new measurement technologies.

Results

This CRADA is near completion. As a result, the EPA and its clients in state and local agencies as well as industrial



Ozone precursor monitoring system

users have three new commercially-available instruments that address CAAA monitoring issues. One instrument operates automatically to monitor hydrocarbon ozone precursors with periodic updates as required by Title I. Instruments of this type are already being widely used at several state agencies. A major advantage of the instrument is that ozone precursors are concentrated without the need for liquid cryogen. This feature eliminates the expense and the trouble of frequent commercial deliveries of liquid cryogen to the monitoring site.

A second instrument is used to sequentially sample ambient air onto solid multisorbent tubes. This unit is being used for both ambient and indoor air sampling toxic VOCs. The third instrument is an accessory to Perkin-Elmer's Model ATD 400 automated thermal desorber and allows the analysis of canister samples with the ATD 400 as well as the standard tube analysis.

This is one of more than 50 cooperative research and development agreements EPA has with various U.S. businesses, consortiums, trade associations, academic institutions, and state and local governments under the Federal Technology Transfer Act of 1986. These agreements serve as a mechanism for EPA to work with private industry to develop new pollution prevention and control technologies, and efficiently bring them into the marketplace.



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